

REMARKS

Claims 1-28 are pending.

Claims 1-10 stand rejected.

Claims 11-28 are objected to.

Claims 1-28 have been cancelled without prejudice.

Claims 29-55 have been added.

Claims 29-55 are hereby submitted for review and consideration.

No new matter has been added.

In paragraph 2 of the Office Action, the Examiner has objected to the Figures. Applicants have re-submitted the Figures without improper erasures or other markings and respectfully request that the rejection of these Figures be withdrawn.

In paragraph 3 of the Office Action, the Examiner has objected to the specification for containing minor informalities. Applicant has amended the specification accordingly and respectfully requests that this objection be withdrawn.

In paragraph 4 of the Office Action, the Examiner has objected to claim 11-28 for being in improper multiple dependent format. Applicant has cancelled claim 11-28 and corrected the newly submitted claims so as not to contain any multiple dependent claims.

As such, Applicant respectfully requests that this objection be withdrawn.

In paragraph 6 of the Office Action, the Examiner has rejected claims 1-3, 7 and 8-10 under 35 U.S.C. § 103(a) as being unpatentable over Cedarholm (U.S. Patent No. 3,857,912) in view of Scott (U.S. Patent No. 3,998,195).

Applicant respectfully disagreed with the Examiner's contentions and submits the following remarks in response.

The present invention, as claimed in independent claim 29 (based on now cancelled independent claim 1) is directed to a fuel-air mixture device. The device has a primary air passage with an inlet, an adjustable throttle mounted on a rotary shaft arranged transversely of the primary air passage, and an outlet. A secondary air passage has an inlet from the primary air passage between its inlet and its adjustable throttle, and an outlet to the primary air passage between its adjustable throttle and its outlet.

A variable orifice nozzle introduces fuel to the primary air passage. The nozzle has a mouth for dispensing fuel into the secondary air passage upstream of its outlet. A tapered needle is arranged radially of the primary air passage and is positioned in the mouth to provide variability of the orifice by axial movement of the needle. The needle is arranged transversely of the primary air passage with its small diameter end directed towards the primary air passage.

The arrangement is such that in use, the fuel mixes with air flowing through the secondary air passage prior to mixing with air flowing in the primary air passage. A linkage mechanism is provided for controlling the position of the needle to the position of the adjustable throttle in the primary air passage for adjustment of the orifice of the nozzle.

An actuator for the tapered needle, is acted on by the linkage, with the needle extending between the actuator and the fuel dispensing mouth of the nozzle. The arrangement is such that as the throttle is opened, the needle is moved away from the primary air passage and out of the mouth of the nozzle to match fuel flow from the nozzle to the position of the adjustable throttle.

An apertured vaporisation block is provided, having a plurality of air passageways through the block, which subdivide a longitudinal portion of the primary air passage between the fuel introduction position and the outlet. The arrangement is such that fuel, air flowing through the secondary air passage and air flowing through the primary air passage all pass through the air passages for mixture of the fuel and the air; and wherein the linkage maintains a cam plate carried on the transverse, throttle-carrying shaft and having a cam surface directed towards the primary air passage, with the actuator for the tapered needle bearing against the cam plate.

In such a configuration a cam plate is carried on the transverse, throttle carrying shaft, such that its cam surface abuts against the actuator for the tapered needle.

On the contrary, the cited prior art, namely, Cedarholm, teaches a fuel injector and carburetor for a motor vehicle. In the arrangement disclosed in Cedarholm, as discussed in column 3, line 53 to column 4, line 8, the throttle 31 is attached to a shaft 30 for rotation within the primary air passage. As the throttle 31 rotates around axis 30, a linking arm 32 having a cam 34, coupled to the throttle 31 below the shaft 30 is moved upwards as the throttle 31 is rotated forcing metering valve 34 upward allowing the injection of fuel into the air chamber.

The cited prior art, namely Scott, teaches a flow vaporizing chamber for use in an

air passage of a carburetor.

The Examiner contends that one skilled in the art could combine the cited references to arrive at the present invention as claimed in claim 1, corresponding to new independent claim 29. However, these references do not teach all of the elements of the present invention. The cam 33 disclosed in Cedarholm is not analogous to the cam plate 9 of the present invention. Unlike the cam of the present invention, cam 33 in Cedarholm is attached to a butterfly-type throttle. In the Cedarhorn arrangement, cam 33 is coupled first to linking arm 32, and in turn to throttle 31, and is not pressed against metering valve 34 of the needle until the main throttle shaft 30 is rotated. Such an arrangement, is unlike the cam surface 9 of the present invention which is carried on a transverse, throttle carrying shaft (7) acting on the needle valve actuator (10) from the rear, outside of the primary air passage. In fact, because cam 33 acts directly on the needle or metering valve 34 in Cedarhorn, it has no need for the rear positioned needle actuator 10 as claimed in independent claim 29 of the present invention.

As such, there is no teaching or suggestion in the prior art, either alone or in combination with one another, that discloses the present invention as claimed. For example, there is no teaching or suggestion in either Cedarholm or Scott, that discloses a cam plate *carried on said transverse, throttle-carrying shaft* and having a *cam surface* directed towards said primary air passage, *with said actuator for said tapered needle bearing against said cam plate.*

In view of the foregoing, Applicant respectfully submits that the present invention as claimed is now in condition for allowance, the earliest possible notice of which is earnestly solicited. If the Examiner feels that a telephone interview would advance the

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prosecution of this application he is invited to contact the undersigned at the number
listed below.

Respectfully submitted

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